

16. (Currently Amended) The device of claim 12 wherein said ~~decompression stiffening mechanism is adapted to~~⁸³means adjusts the vertical separation of said first and second tightening links ~~to alter said outward force~~;

17. (Currently Amended) The device of claim 12 wherein said spring link is ~~adapted to further consists of an integrated~~hinge that enables deflection along a second plane, ~~different from said decompression plane into a configuration different from that observed during actuation of said stiffening means, in response to an external force, and return towards its resting configuration once the external force is reduced or removed~~;

18. (Currently Amended) The device of claim 12, wherein said at least one superelastic ~~member support~~ comprises nickel titanium;

19. (Currently Amended) The device of claim 12, wherein said at least one superelastic ~~member support~~ comprises a single ~~rod wire of material thermally formed~~ into said tightening links and ~~the at least one~~said spring link;

REMARKS

Formal Matters

Claims 1-19 are pending after entry of the amendments set forth herein.

Claims 1-19 were examined. Claims 1-19 were rejected.

Applicant would like to thank the Examiner for the telephonic interview on August 28, 2003 with Applicant, James G. Wayne, during which the Bullock, and Brown references (U.S. Pat. Nos. 2,195,024; and 4,665,905) were discussed in light of the claims.

Claims 1-19 have been amended. Support for the amendments to claims is found throughout the specification. No new matter has been added.

The Applicant respectfully requests entry of the amendments to the claims.

Attached hereto is a marked-up version of the changes to the currently amended claims per 37 CFR 1.121.

The following remarks are responsive to the Office Action mailed on June 13, 2003.

Rejections Under 35 U.S.C. § 112, First Paragraph

The Office has rejected claims 12-19 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

The Office has rejected claims 1-19 under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter.

In response, claims 1-19 have been amended to ensure enablement and impose sufficient structural limitations and to clarify the subject matter.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claims 1-19 under 35 U.S.C. § 112.

Rejections Under 35 U.S.C. § 102(b)

The Office has rejected claims 1, 3-11 as allegedly being unpatentable over Bullock (2,195,024).

In support of the rejection of claims 1, 3-11 the Office Action (Paper No. 4) states on page 3:

Bullock shows every claimed feature of claim 1 including a superelastic member A, and a covering 1. Note that "superelastic" is a relative term. As for claims 3 and 10, note that the stop 2 of Bullock. As for claims 5 and 11 note that claims 5 and 11 are only functional statements of intended use without any further limitation of structure, and note that the tightening links of super elastic member A of Bullock can be deflected with an external force into an enlarged configuration for placement. As for claims 6 and 9, note the locking mechanism C of Bullock. As for claim 8, note the interconnect mechanism 4 of Bullock.

Claims 1, 3-11 have been amended to provide structural limitations supported by the drawings and specification.

Bullock describes an elastic cord connected to a conventional knee brace involving a pivoting mechanism between upper and lower halves of the brace. The elastic cord is connected to the upper and lower halves of the knee brace and to a pad oriented against the patella. As the joint flexes, the elastic cord is placed in tension to urge the pad against the knee.

The invention as detailed in claims 1, 3-11 amended herein provide a unitary device, as opposed to Bullock's which consists of multiple distinct components connected together. In addition, Bullock utilizes an elastic cord in tension to urge the pad against the knee; as such, the elastic cord does not deflect and return towards its preformed shape once the deflection force is removed.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claims 1, 3-11 under 35 U.S.C. § 102(b).

Rejections Under 35 U.S.C. § 103(a)

The Office has rejected claim 2 as allegedly being unpatentable over Bullock (2,195,024) in view of Greenfield (5,261,871) or Brown (4,665,905).

In support of the rejection of claim 2, the Office Action (Paper No. 4) states on page 4:

While Bullock does not teach a loop at the flex region, Greenfield (Figures 9 & 12) and Brown teach this structure. In view of the teachings of Greenfield (Figures 9 & 12) and Brown, it would have been obvious to an ordinary skill in the art at the time the invention was made to provide the spring link of the brace of Bullock with a loop in order to change the degree of resistance against (or the support for) the flexion of the joint of a wearer.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

As described above Bullock describes a device incorporating multiple distinct components including two brace halves united at a pivoting mechanism and an elastic cord that when placed into tension urges a separate pad against the knee.

The invention herein described in amended claim 1 consists of a unitary support that contains tightening and spring links integrated together to attach the device to the body and define the deflection of the joint with a single support component.

Claim 2, as amended, depends upon claim 1 and therefore is patentable over Bullock in view of Greenfield or Brown for at least the reasons above.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claim 2 under 35 U.S.C. § 103(a).

The Office has rejected claims 1-11 as allegedly being unpatentable over Castillo (4,856,501) in view of Greenfield (5,261,871).

In support of the rejection of claims 1-11 the Office Action (Paper No. 4) states on page 4:

Castillo et al teaches every claimed feature of claim 1 except for a covering.
Greenfield teaches superelastic wires received in pockets for covering the wires.
In view of the teaching of Greenfield, it would have been obvious to an ordinary skill in the art at the time the invention was made to provide covering

for the superelastic member of Castillo et al in order to protect or cover the superelastic member. Note that "superelastic" is a relative term..

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

Castillo describes a conventional brace with multiple support components including a pivoting mechanism between the upper half and the lower half of the brace. In addition, Castillo describes separate attachment mechanisms secured to the upper and lower halves of the brace to stabilize the brace against the body.

The invention herein in claims 1-11 describe a unitary support consisting of tightening links to attach the support to the body integrated with spring links having integrated hinges to define the movement of the joint.

Independent claims 1 and 7, as amended, are patentable over Castillo in view of Greenfield for at least the reasons above. Dependent claims 2-6 and 8-11 ultimately depend from independent claims 1 and 7 and are therefore patentable for at least the same reasons.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claims 1-11 under 35 U.S.C. § 103(a).

The Office has rejected claims 1, 2, 4-7, 9, 11 as allegedly being unpatentable over Brown in view of Greenfield (5,261,871).

In support of the rejection of claims 1, 2, 4-7, 9, 11 the Office Action (Paper No. 4) states on page 5:

Brown teaches every claimed feature of claim 1 except for a covering.
Greenfield teaches superelastic wires received in pockets for covering the wires.
In view of the teaching of Greenfield, it would have been obvious to an ordinary skill in the art at the time the invention as made to provide covering for the superelastic member of Brown in order to protect or cover the superelastic member. Note that "superelastic" is a relative term. As for claim 2, note loop 5 of Brown (Figure 1). As for claims 5 and 11, note that claims 5 and 11 are only functional statements of intended use without any further limitation of structure, and note that the tightening links of super elastic member of Brown can be deflected with an external force into a enlarged configuration for placement.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

Brown describes a brace with multiple support components including two distinct sides that are attached to two distinct rigid cuffs via two distinct intermediate yokes. In addition, Brown further describes adjustability between the separate components to account for differences in anatomy between users.

The invention herein in claims 1-19 describe a unitary support consisting of tightening links to attach the support to the body integrated with spring links having integrated hinges to define the movement of the joint. This unitary support transfers forces between the integrated spring links and tightening links unlike conventional braces and those like Brown which involving multiple support components attached together. The attachment means for Brown and other such braces involving multiple support components are rigid and interfere with the transfer

of deflection forces...In addition, mismatches in compliance between distinct support components, such as described in Greenfield, produce localized high-stress regions and hinder operation of each distinct component of the brace. The unitary support of the invention herein described in claims 1-19 distribute the stresses along the integrated support to prevent localized stresses and ensure operation of the brace is not inhibited by such abrupt compliance mismatches.

Independent claims 1 and 7, as amended, are patentable over Brown in view of Greenfield for at least the reasons above. Dependent claims 2, 4-6, 9, and 11 ultimately depend from independent claims 1 and 7 and are therefore patentable for at least the same reasons.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claims 1, 2, 4-7, 9, 11 under 35 U.S.C. § 103(a).

The Office has rejected claims 3, 8, and 10 as allegedly being unpatentable over Brown in view of Greenfield (5,261,871) and further in view of Dasefsky (4,607,628) or Castillo.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

Independent claims 1 and 7, as amended, are patentable over Brown in view of Greenfield, Dasefsky or Castillo for at least the reasons above. Dependent claims 3, 8, and 10 ultimately depend from independent claims 1 and 7 and are therefore patentable for at least the same reasons.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claims 3, 8, and 10 under 35 U.S.C. § 103(a).

The Office has rejected claims 12-18 as allegedly being unpatentable over Hittenberger (2,453,370) in view of Greenfield (5,261,871).

In support of the rejection of claims 12-18 the Office Action (Paper No. 4) states on page 6:

Hittenberger teaches every claimed feature of claim 12 except for the superelastic material recited in claim 12. Greenfield teaches the use of this material for wire members. In view of the teaching of Greenfield, it would have been obvious to an ordinary skill in the art at the time of the invention was made to use superelastic material for the brace of Hittenberger. Note that "superelastic" is a relative term.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

Independent claim 12, as amended, is patentable over Hittenberger in view of Greenfield for at least the reasons above. Dependent claims 13-18 ultimately depend from independent claim 12 and are therefore patentable for at least the same reasons.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claims 12-18 under 35 U.S.C. § 103(a).

The Office has rejected claim 19 as allegedly being unpatentable over Bullock or Dashefsky or Hass in view of Greenfield (5,261,871).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143.

Independent claim 12, as amended, is patentable over Bullock or Dashefsky or Hass in view of Greenfield for at least the reasons above. Dependent claim 19 ultimately depends from independent claim 12 and is therefore patentable for at least the same reasons.

Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejections of claim 19 under 35 U.S.C. § 103(a).

CONCLUSION

Applicants have, by way of the amendments and remarks presented herein, made a sincere effort to overcome rejections and address all issues that were raised in the outstanding Office Action. Accordingly, reconsideration and allowance of the pending claims are respectfully requested. If it is determined that a telephone conversation would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

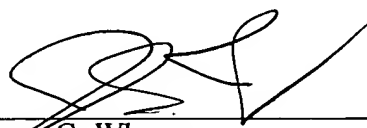
In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that additional extensions and/or other relief is required, Applicant

petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to notify the undersigned as to the cost of such petitions and/or other fees due in connection with the filing of this document so such fees can be promptly.

Respectfully submitted,

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By:


James G. Whayne
1200 Pinehurst Drive
Chapel Hill, North Carolina 27517
Telephone: (919) 945-0810
Facsimile: (919) 945-0812

Russell A. Houser
1787 Verdite Street
Livermore, California 94550
Telephone: (925) 371-1946
Facsimile: (925) 371-1029